

REMARKS

Claims 1 and 16 have been amended. New claims 17 and 18 have been added. Claims 1-5 and 16-18 are currently pending in this application. Applicant reserves the right to pursue the original and other claims in this and other applications.

Claims 1-6 and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over McCollum et al. (U.S. Patent No. 3,948,755) (“McCollum”) in view of either Koizumi et al. (JP 2003097290A) (“Koizumi ‘290”) or Koizumi et al. (JP 2003090227A) (“Koizumi ‘227”) and admitted prior art. This rejection is respectfully traversed and reconsideration is respectfully requested.

Applicant submits that the cited combination does not disclose, teach or suggest the process as claimed “wherein the vanadium concentration of said reformed oil is reduced to 2 ppm or less.” Further, one skilled in the art would not have been motivated to combine the cited references in the manner discussed by the Office Action.

McCollum discloses in Example 42 that a maximum of 96% of vanadium can be removed from straight tar sands (having a vanadium content of 182 ppm) which results in a residual vanadium content of about 7 ppm. See, McCollum, col. 22, line 41 – col. 23, line 52, Tables 9 and 11. Although, McCollum discloses in Example 55 that a maximum of 99% of vanadium can be removed from straight tar sands (having a vanadium content of 182 ppm) which results in a residual vanadium content of about 1.8 ppm, these values are based on a semi-continuous flow process, which is different from the process of the claimed invention. See, McCollum, col. 26, line 45 – col. 27, line 35, Table 13. Further, the object of McCollum is the reformation of tar sands and not the heavy oil reformed by the present invention. Therefore, McCollum does not disclose a vanadium concentration (resulting from the claimed process) of 2 ppm or less for use in a gas turbine process.

The Office Action states that McCollum does not disclose certain limitations of the claims. Office Action, page 3. Specifically, McCollum does not disclose at least “that the water is heated to 300 to 500 and pressuring to 10 MPa to 30 MPa before contacting with the heavy oil, ...

that the feedstock is a hydrocarbon heavy oil, ... that water is either supercritical water or subcritical water, ... that the reforming oil can be used in a gas turbine, and ... the step of utilizing the heat exhaust gas from the gas turbine." Id. The Office Action relies on Koizumi '290 and Koizumi '227 as disclosing heavy oil passing into a gas turbine process. Id.

The Office Action further states that "it would have been obvious to one having ordinary skill in the art ... to have modified the process of McCollum by passing the heavy oil [to] a gas turbine as suggested by the JP references because the heavy oil of McCollum can be used for any purpose including in a gas turbine process." Office Action, page 4. The Office Action further states that Koizumi '290 and Koizumi '227 teaches that any reformed oil can be used in the process. Office Action, page 5. Applicant respectfully disagrees.

First of all, neither of the abstracts of Koizumi '290 nor Koizumi '227 state that any reformed fuel can be used in the process, just that reformed fuel is used in gas turbine processes. One skilled in the art would assume that Koizumi '290 nor Koizumi '227 disclose using a reformed fuel that is appropriate for use in a gas turbine process. One skilled in the art would appreciate that a reformed oil with a high vanadium content would cause adverse affects on the turbine devices. These adverse affects occur because when a reformed oil with a high vanadium content is burned and introduced into a gas turbine, there is the danger that the turbine blades, etc., are corroded due to the vanadium contained in the combustion gas.

In order to avoid these adverse affects, reformed oils for use in gas turbines should have the claimed sufficiently small content of vanadium. As discussed in the present application, vanadium contents which are sufficiently small to avoid adverse affects on the gas turbine are on the order of 2 ppm or 0.1 ppm. Specification, page 10, lines 3-13. In the present invention, since the reformed oil that is supplied to the gas turbine has a vanadium concentration of 2 ppm or less, the reformed oil can be used without the need to take specific measures for corrosion protection of the gas turbine. One skilled in the art would appreciate that the vanadium content present in the reformed oil of McCollum would cause adverse affects if used within a gas turbine.

Therefore, one skilled in the art would not have used the reformed oils obtained as a result of the reaction of McCollum within the gas turbines of Koizumi '290 or Koizumi '227.

Accordingly, claims 1 and 16 are allowable in view of the cited combination. Claims 2-5 and new claims 17 and 18 depend from claim 1 and are allowable along with claim 1. Applicant respectfully requests that the rejection of claims 1-5 and 16 be withdrawn and all claims be allowed.

In view of the above, Applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

By Jennifer McCue
Mark J. Thronson

Registration No.: 33,082
Jennifer M. McCue
Registration No.: 55,440
DICKSTEIN SHAPIRO LLP
1825 Eye Street, NW
Washington, DC 20006-5403
(202) 420-2200
Attorneys for Applicant